

WHAT IS CLAIMED IS:

1 1. A diode-pumped solid-state laser device used to
2 side-pump a laser rod, wherein:

3 a cooling tube to cool said laser rod with the use of
4 flowing water is provided coaxially so as to surround said
5 laser rod; and

6 said cooling tube is provided with a antireflection
7 area for pumping light on a portion of an outer surface
8 thereof, and with a high reflection area for the pumping
9 light on another portion of the outer surface on which said
10 antireflection area is absent.

1 2. The diode-pumped solid-state laser device
2 according to Claim 1, wherein:

3 a pumping laser diode is placed in such a manner so
4 as to prevent an optical axis of the pumping light that
5 passes through said antireflection area and goes incident
6 on said laser rod from intersecting with a central axis of
7 said laser rod.

1 3. The diode-pumped solid-state laser device
2 according to Claim 2, wherein:

3 said antireflection area is provided to a plurality
4 of places along a circumferential direction of said outer
5 surface.

1 4. The diode-pumped solid-state laser device

2 according to Claim 3, wherein:

3 said antireflection area is provided to said
4 plurality of places at equal intervals along the
5 circumferential direction.

1 5. The diode-pumped solid-state laser device

2 according to Claim 3, wherein:

3 said antireflection area comprises a antireflection
4 coating; and

5 said high reflection area comprises a high reflection
6 coating.

1 6. The diode-pumped solid-state laser device

2 according to Claim 5, wherein:

3 said high reflection coating is covered with said
4 antireflection coating.

1 7. The diode-pumped solid-state laser device

2 according to Claim 5, wherein:

3 said antireflection area includes said antireflection
4 coating alone; and

5 said high reflection area includes said high
6 reflection coating on said antireflection coating.

1 8. The diode-pumped solid-state laser device

2 according to Claim 3, wherein:

3 said cooling tube is further provided with a

4 scattering surface on an inner surface thereof.

1 9. The diode-pumped solid-state laser device

2 according to Claim 3, wherein:

3 a scattering surface is provided on an outer surface
4 of said high reflection area.

1 10. A manufacturing method of a diode-pumped solid-
2 state laser device used to side-pump a laser rod, in which
3 a cooling tube to cool said laser rod with the use of
4 flowing water is provided coaxially so as to surround said
5 laser rod, said method comprising:

6 a step of providing said cooling tube with a
7 antireflection area for pumping light on a portion of an
8 outer surface thereof; and

9 a step of providing said cooling tube with a high
10 reflection area for the pumping light on another portion of
11 the outer surface on which said antireflection area is
12 absent.

1 11. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 10, further
3 comprising:

4 a step of placing a pumping laser diode in such a
5 manner so as to prevent an optical axis of the pumping
6 light that passes through said antireflection area and goes
7 incident on said laser rod from intersecting with a central

8 axis of said laser rod.

1 12. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 11, wherein:

3 said antireflection area is provided to a plurality
4 of places along a circumferential direction of said outer
5 surface.

1 13. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 12, wherein:

3 said antireflection area is provided to said
4 plurality of places at equal intervals along the
5 circumferential direction.

1 14. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 12, wherein:

3 said antireflection area comprises a anti-reflection
4 coating; and

5 said high reflection area comprises a high reflection
6 coating.

1 15. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 14, wherein:

3 said high reflection coating is covered with said
4 anti-reflection coating.

1 16. The manufacturing method of a diode-pumped solid-

2 state laser device according to Claim 14, wherein:

3 said antireflection area includes said anti-
4 reflection coating alone; and

5 said high reflection area includes said high
6 reflection coating on said anti-reflection coating.

1 17. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 12, further
3 comprising:

4 a step of providing a scattering surface on an inner
5 surface of said cooling tube.

1 18. The manufacturing method of a diode-pumped solid-
2 state laser device according to Claim 12, further
3 comprising:

4 a step of providing a scattering surface on an outer
5 surface of said high reflection area.